

Using Deep NLP to Classify Wine Bottles

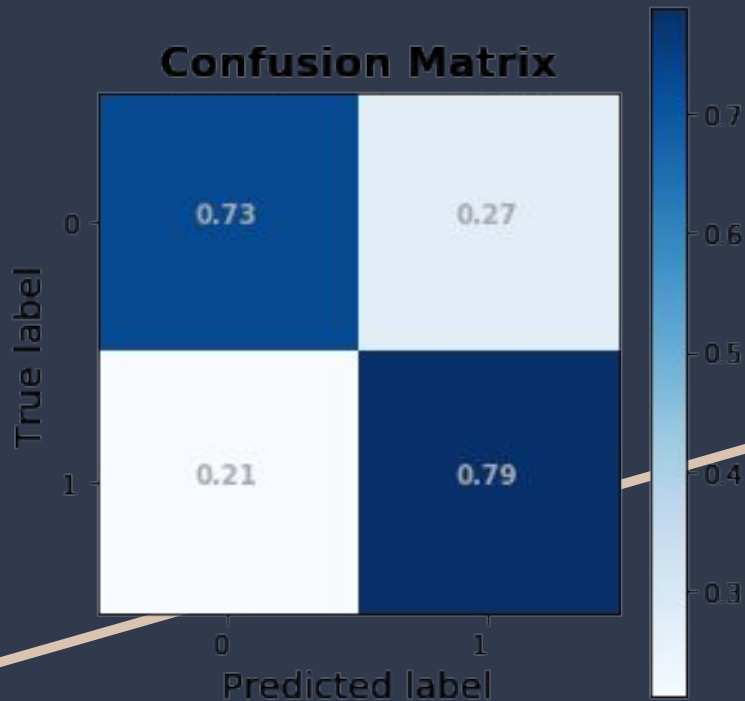
Acusio Bivona

A dark blue diagonal gradient bar that starts from the bottom left and extends towards the top right, covering the lower half of the slide.

Objectives

- 1.) Classify wine bottles by price
 - Done by examining wine reviews
 - 2 groups
 - Cheap vs. Expensive
 - Price cutoff - \$25
 - Arbitrarily chosen
- 2.) Determine which words are most frequently used
 - Separated into 3 groups:
 - All of the bottles, the cheap bottles, and the expensive bottles
- 3.) Can the results be used for reliable business insights?

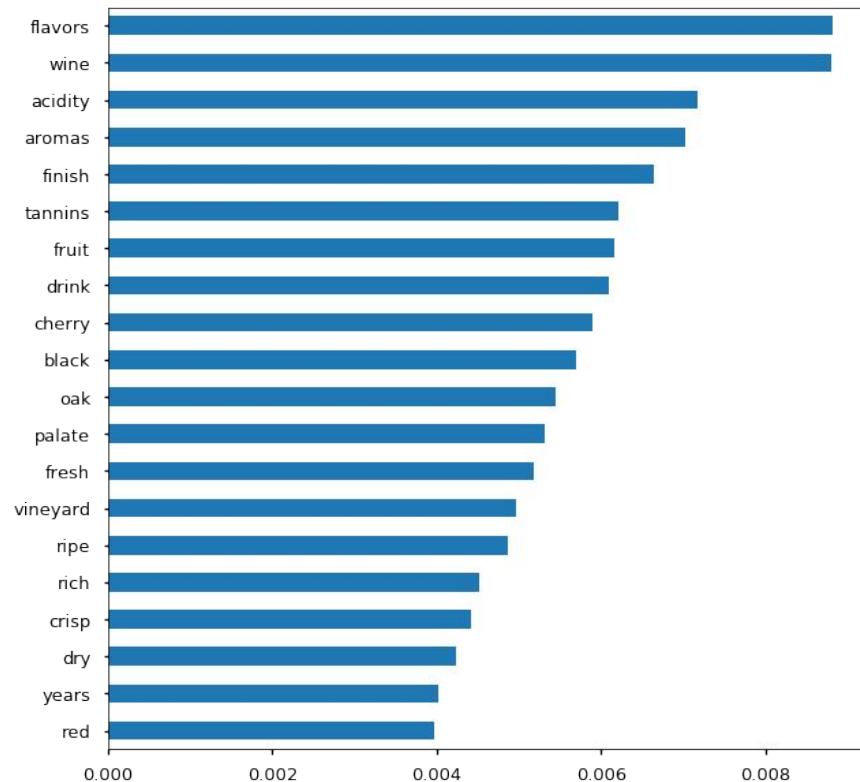
Classification Results



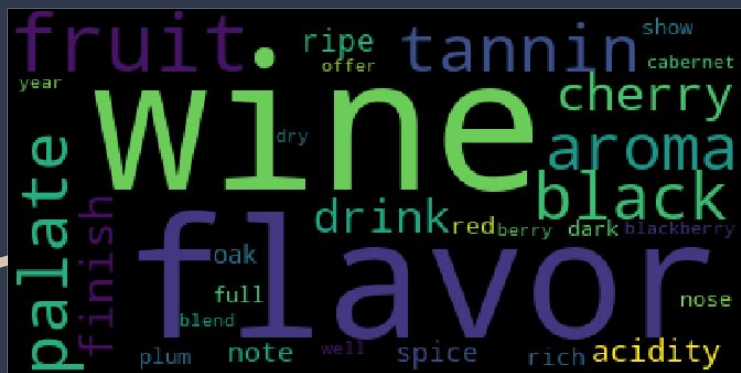
- Top left = Cheap wines
 - Correctly classified with 73% accuracy
- Bottom right = Expensive wines
 - Correctly classified with 79%
- Overall: Pretty reliable
 - Can perhaps increase performance with further experimentation



Important Words



Cheap vs. Expensive



Unique words for cheap wine(Top):

- Fresh
- Berry
- Crisp
- Dry

Unique words for expensive wine(Bottom):

- Oak
- Rich
- Blackberry
- Cabernet

Significance: The two categories are distinct

Unique Word Pairings

Cheap

| | Words | Frequency |
|----|-----------------------|-----------|
| 0 | (drink, now.) | 0.002405 |
| 1 | (fruit, flavors) | 0.001817 |
| 2 | (black, cherry) | 0.001671 |
| 3 | (palate, offers) | 0.001295 |
| 4 | (cabernet, sauvignon) | 0.000988 |
| 5 | (fruity, wine) | 0.000939 |
| 6 | (sauvignon, blanc) | 0.000902 |
| 7 | (ready, drink) | 0.000899 |
| 8 | (green, apple) | 0.000895 |
| 9 | (ready, drink.) | 0.000847 |
| 10 | (stone, fruit) | 0.000796 |
| 11 | (red, berry) | 0.000788 |
| 12 | (berry, fruits) | 0.000786 |
| 13 | (flavors, finish) | 0.000785 |
| 14 | (crisp, acidity) | 0.000753 |
| 15 | (nose, palate) | 0.000744 |
| 16 | (berry, flavors) | 0.000740 |
| 17 | (tropical, fruit) | 0.000736 |
| 18 | (finish, drink) | 0.000723 |
| 19 | (black, fruits) | 0.000704 |

Expensive

| | Words | Frequency |
|----|-----------------------|-----------|
| 0 | (black, cherry) | 0.002873 |
| 1 | (cabernet, sauvignon) | 0.002039 |
| 2 | (fruit, flavors) | 0.001581 |
| 3 | (palate, offers) | 0.001315 |
| 4 | (pinot, noir) | 0.001206 |
| 5 | (black, pepper) | 0.001152 |
| 6 | (drink, now.) | 0.001064 |
| 7 | (cabernet, franc) | 0.001029 |
| 8 | (petit, verdot) | 0.000862 |
| 9 | (white, pepper) | 0.000837 |
| 10 | (black, currant) | 0.000816 |
| 11 | (black, fruit) | 0.000806 |
| 12 | (french, oak) | 0.000766 |
| 13 | (palate, delivers) | 0.000766 |
| 14 | (red, cherry) | 0.000752 |
| 15 | (firm, tannins) | 0.000724 |
| 16 | (cherry, fruit) | 0.000719 |
| 17 | (dark, chocolate) | 0.000709 |
| 18 | (finish, drink) | 0.000706 |
| 19 | (nose, palate) | 0.000647 |

Summary

- Pretty reliably classified cheap vs. expensive wine using professional wine reviews
- Determined that cheap & expensive wines have unique characteristics
 - Cheap:
 - Berry, Dry
 - Expensive:
 - Blackberry, Rich
- This provides valuable insights on both marketing and new wine creation
 - Marketing:
 - Can highlight the unique aspects of the wine depending on its price point
 - Wine Creation:
 - I.e. Use qualities from expensive wine to increase value of cheap wine
 - Or, can use qualities of cheap wine to make expensive wines more alluring

Future Works

If more time were permitted:

- Explore varieties of wine to discover their price points
- Explore wine regions
- Perhaps explore specific wineries



Thank you for your
time!

Questions are welcomed